CROSS-BEACH INFRASTRUCTURE

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ENHANCED COASTAL TRAFFICABILITY

EXISTING TECHNOLOGIES

Sandy Soil

Sand-Grid

BEST REMAINING ALTERNATIVE

Uni-Mat

Mo-Mat

Steel Mat

POTENTIAL TECHNOLOGIES

➡SANDY SOIL SOLUTIONS:

- **Sand-Fiber Stabilization**
- **Fiberglass Reinforced Mat**
- **Plastic Hexagonal Mat**

SAND-FIBER STABILIZATION

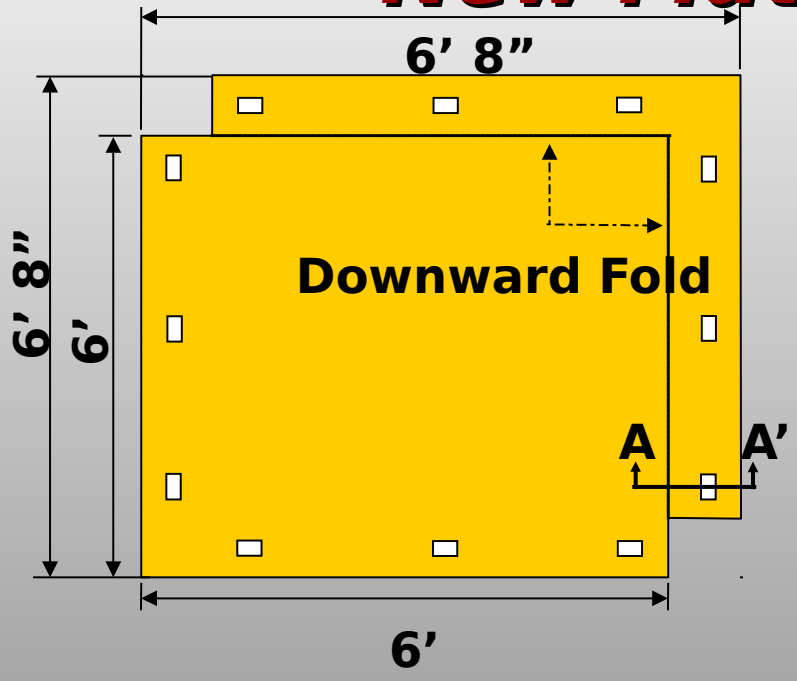
- **STATUS:**
  - **Laboratory Mix Design Complete**
  - **Field Validated With Full-Scale Test Sections**
  - **Ready for JLOTS Demonstration**

SAND-FIBER STABILIZATION

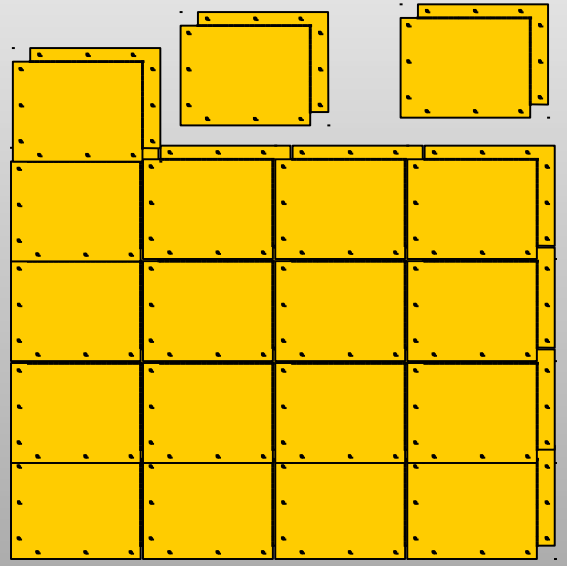
Road Construction

FIBERGLASS REINFORCED MAT

New Mat Configuration

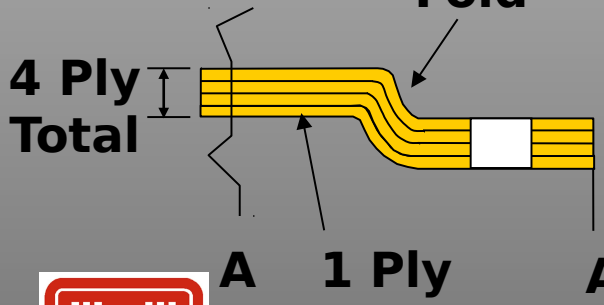


Plan View

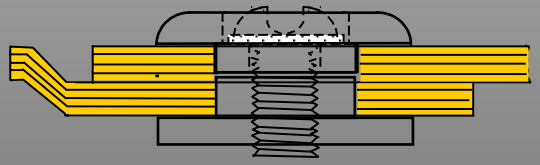


24’ Wide Road

Downward Fold



Section A-A’ Profile View

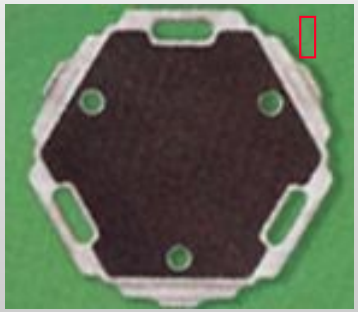


Mat With Pin Connector

HEXAGONAL MATS

PLACEMENT RATE

900 ft²/Man-hr
vs.
240 ft²/Man-hr for M8A1



Aluminum

- Weight: 21 lb
- Size: 2.9 ft²
- Wheel Load: 28,000

Plastic Special

- Weight: 6.7 lb
- Size: 2.9 ft²
- Wheel Load: 13,000

Plastic Allround

- Weight: 6.7 lb
- Size: 2.9 ft²
- Wheel Load: 13,000

MAT PERFORMANCE

Under 5-Ton Truck Traffic

- **ALUMINUM HEX MAT**
  - 1.1 In. Rut After 5000 Passe
- **PLASTIC HEX MAT**
  - 2.8 In. Rut After 5000 Passes
- **FIBERGLASS MAT**
  - 1.8 In. Rut After 5000 Passes

ATD EXIT CRITERIA

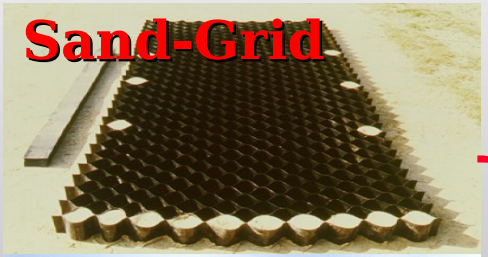
ENHANCED COASTAL TRAFFICABILITY AND SEA STATE MITIGATION

Part II: Cross-Beach (Sandy Soil)

Description	Threshold	Goal
• Demonstrated Improvement in Construction Time over Existing Systems	30%	50%
• Demonstrated Performance in Terms of Throughput and Maintenance Relative to Sand Grid Roadways	Equal	20% Better
• Transportable and Employable Using Existing Assets	N/A	N/A
• Reduced Logistics Requirement to Satisfy the Objective Force	20%	30%

CROSS THE BEACH

CURRENT TECHNOLOGY

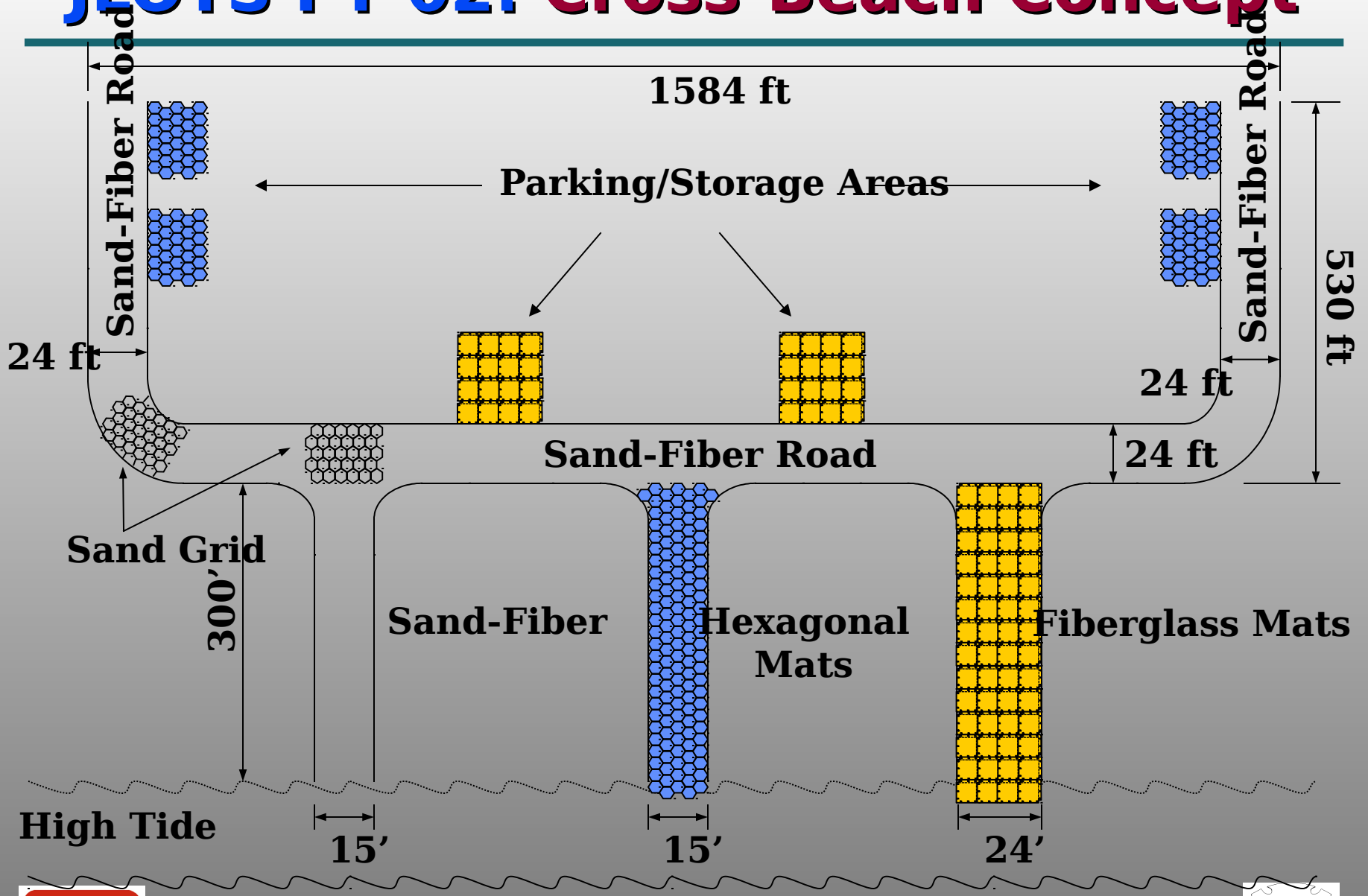


ERDC

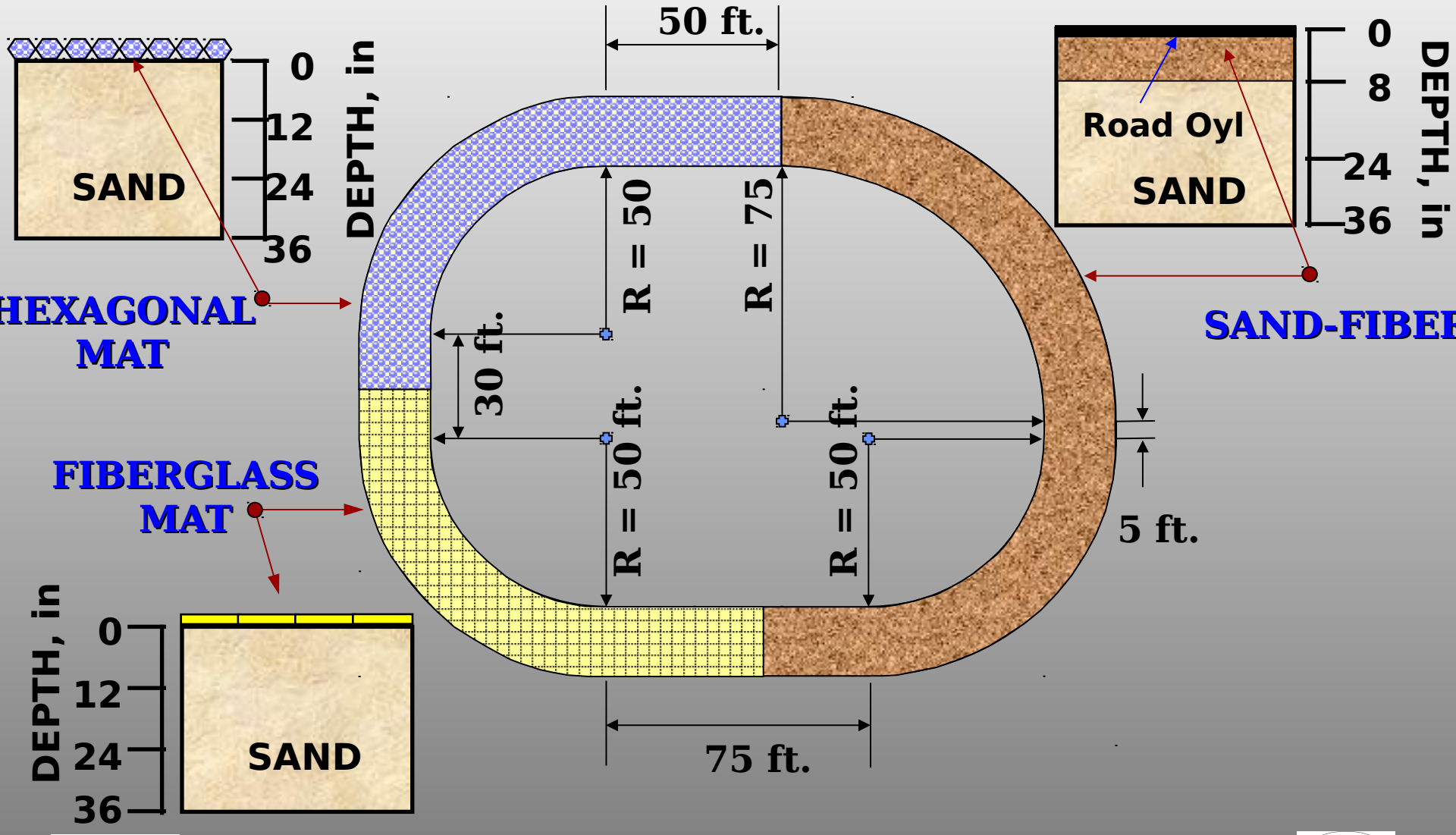
Solutions

FUTURE TECHNOLOGY

JLOTS FY 02: Cross-Beach Concept



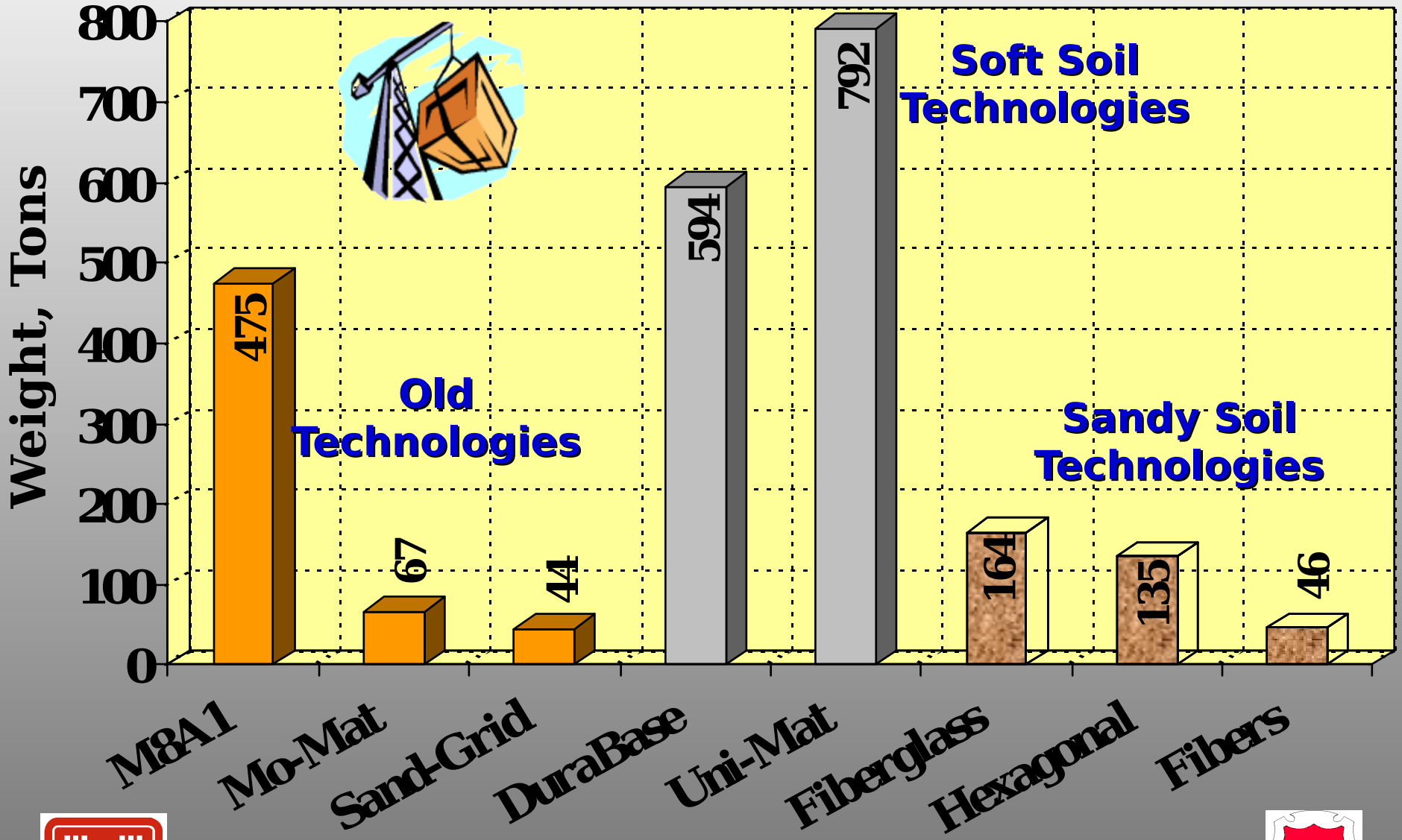
FIELD TEST SECTION FY 01



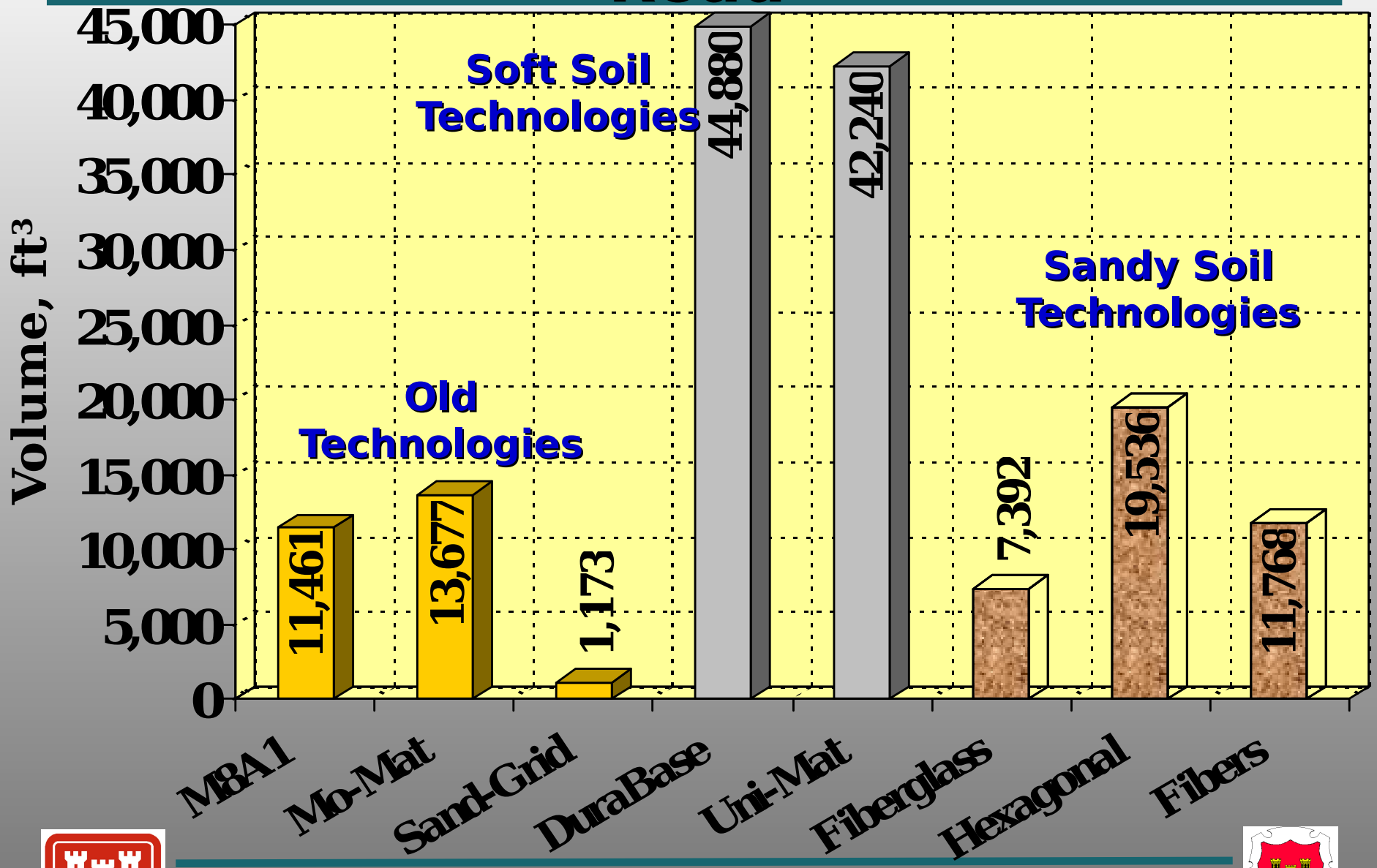
LOGISTICS: Road Construction

- **Road**
  - **Length – 1 mile**
  - **Width – 24 ft**
- **Flat Rack ISO Container**
  - **Length – 20 ft**
  - **Width – 8 ft**
  - **Height – 8.5 ft**

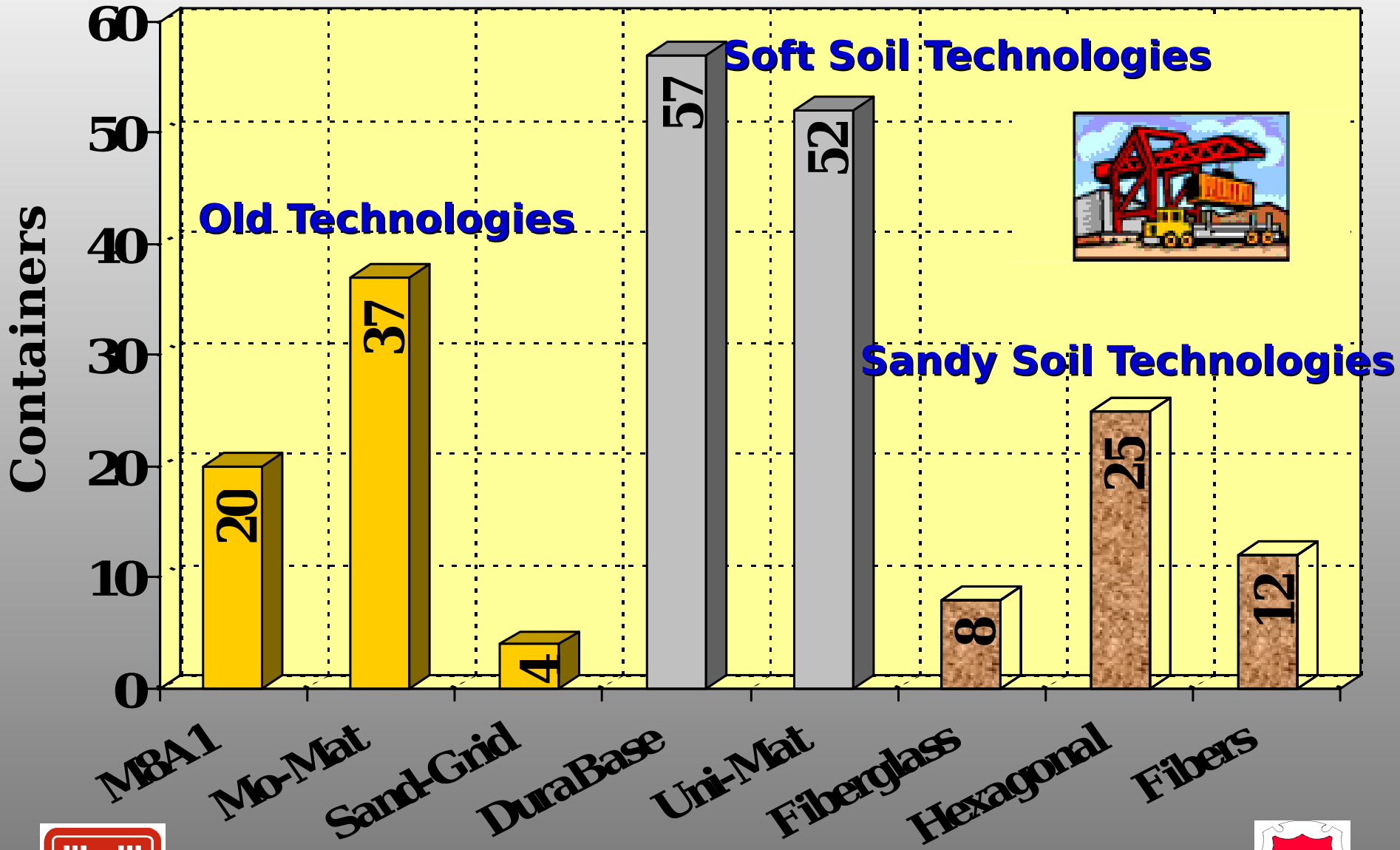
LOGISTICS: Weight per 1 Mile of Road



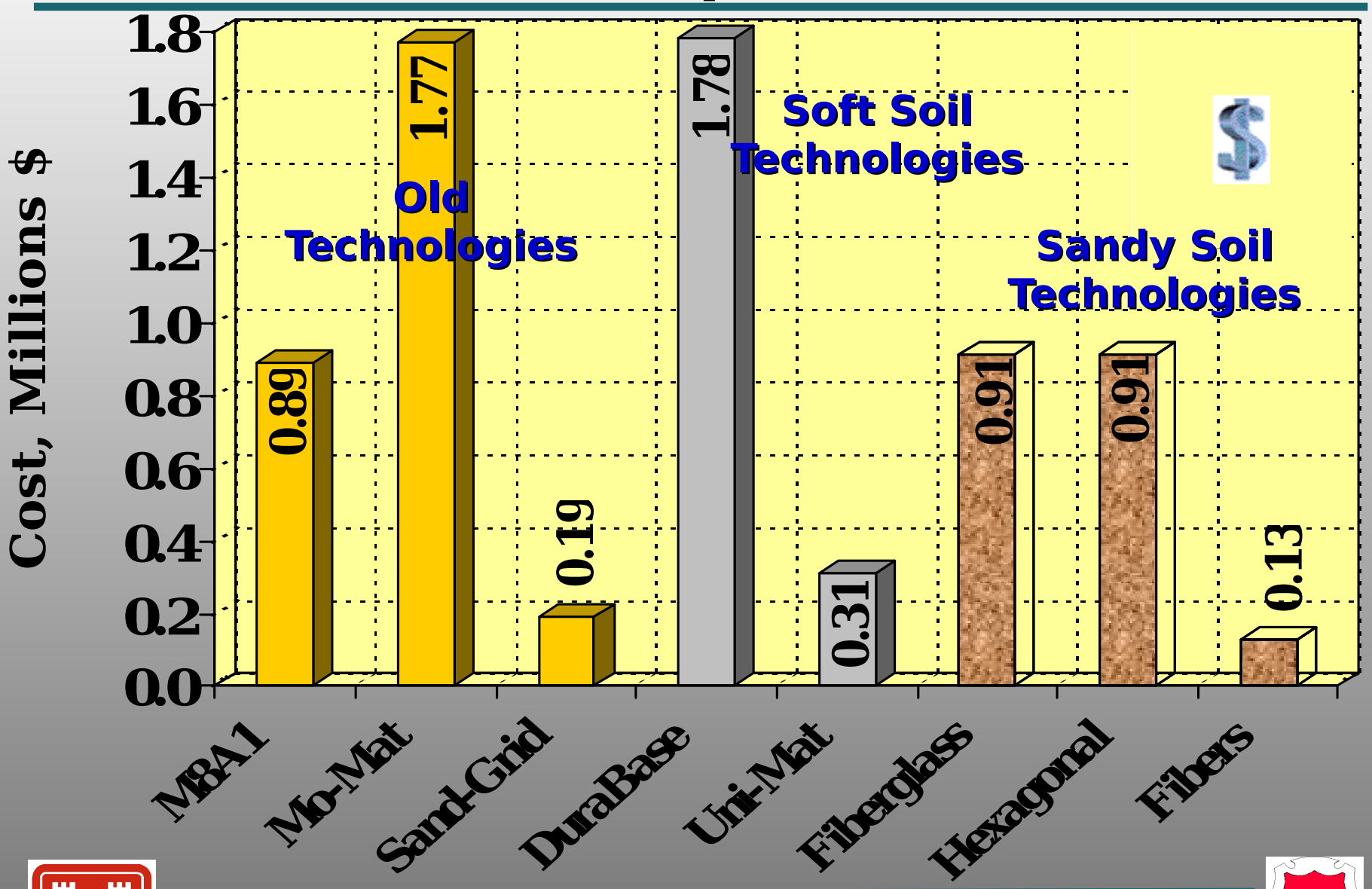
LOGISTICS: Volume per 1 Mile of Road



LOGISTICS: Containers per 1 Mile of Road



LOGISTICS: Cost per 1 mile of Road



SUMMARY

➡**Four Solutions for Sandy Soil Stabilization**

- **Sand-Fiber Stabilization**
- **Fiberglass Reinforced Mat**
- **Plastic Hexagonal Mat**
- **Sand Grid**

SUMMARY

- **Potential Solutions for Sandy Soil Stabilization**
  - **Reduce construction time, manpower, and cost**
  - **No required special construction skills**
  - **Traffic can proceed immediately**
  - **Use existing construction equipment**

FY 01 AND BEYOND

- *FY 01 Develop Test Plan for FY02 LOTS Demo*
- *FY 01 Purchase Materials for Beach Stabilization*
- *FY 01 Demonstrate Technologies at WES*
- *FY 01 Incorporate Lessons Learned in Final Design*
- *FY 02 Prepare Environmental Assessment/Safety Release*
- *FY 02 Demonstrate Beach Stabilization w/ Exercise*
- *FY 02 Validate Exit Criteria*
- *FY 02 Transition Technologies For Deployment*
- *FY 03 Begin UFR: Port Operations Rapid Throughput System - Land side*

All Milestones have been met on schedule and within budget

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